PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :

Naotaka Wachi, et al. : Group Art Unit: 1752

Appln. No.: 10/054,891 : Examiner: SCHILLING, RICHARD L

Filed: January 25, 2002 :

For: MULTICOLOR IMAGE-FORMING MATERIAL AND METHOD FOR FORMING MULTICOLOR

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

I, Akihiro Shimomura, do declare and state as follows:

I am a citizen of Japan.

I graduated from Kyoto University, Faculty of Engineering, Course of Polymer Chemistry with a Master's Degree in March of 1982.

Since April 1982 I have been employed by Fuji Photo Film Co., Ltd. and have been engaged in research and development on heat-sensitive recording materials at the Fujinomiya Laboratories of the company.

I am a co-inventor of the invention described and claimed in the above-named application, and I am familiar with the subject matter disclosed by the application as well as the Office Action dated April 23, 2003 concerning the application.

In order to demonstrate the unexpected superiority of the present invention, the following experimentation was conducted by me or under my supervision.

EXPERIMENTATION

Experiments 1, 2 and 3

A transferred image to actual paper in each of Experiments 1, 2 and 3 was formed in the same manner as in Example 1 of the present specification except for not using the matting agent and changing an image recording area size as set forth in the Table A below. Each of the black transfer images in the obtained images was evaluated in view of Image Transfer rate and Image Quality (Solid Part and Line Image Part) in the same manner as in Example 1 of the present specification. The results are shown in Table A together with Example 1 and Comparative Example described in the present specification.

Table A

	OD/layer thickness of light-to-heat converting layer	Image recording area size	Matting agent in light-to-heat converting layer	Evaluation (black)		
				Difference in image transfer rate	Image quality	
					solid part	line image part
Example 1	3.44	B2	present	2.1 % *1: 97.5% *2: 95.4%	○	○
Comparative Example 1	0.45	B2	present	6.7 % *1: 94.0% *2: 87.3%	△	×
Experiment 1	3.44	B2	absent	4.1 % *1: 96.7% *2: 92.6%	○	○
Experiment 2	3.44	A3	absent	3.0 % *1: 97.0% *2: 94.0%	○	○
Experiment 3	3.44	A4	absent	2.2 % *1: 97.1% *2: 94.9%	○	○

In the experiments shown above, the evaluation of image transfer rates was made by a difference between the image transfer rate determined at a temperature of 26°C and a humidity of 65% (recording condition *1) and the image transfer rate determined at a temperature of 20°C and a humidity of 40% (recording condition *2). As can be seen from the data set forth in the above Table A, influences exerted on not only individual image transfer rates but also a difference between them by a change in temperature and humidity at the time of recording (recording conditions) varied depending greatly on the image recording area size (including the sizes of heat transfer and image-receiving sheets) and on whether or not the matting agent was present in the light-to-heat converting layer. These results cannot be expected from each of the cited references. Incidentally, achievement of very high image-transfer rates, 97.5% and 95.4%, in a very large image-recording area size of B2 under the recording conditions *1 and *2 respectively was only in Example 1 of the present application.

Additionally, the excellent suitability of the present image-forming material for change in temperature and humidity is also attributable to such a high OD/layer thickness ratio of the light-to-heat converting layer in the present invention.

Demonstrating effects produced by the presence of a matting agent in a light-to-heat converting layer and dependence of these effects upon image recording area size.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or

both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectively submitted,

Date: Aug. 25. 2003

Akihiro Shimomura

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